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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,757	10/19/2001	Rick C. Stevens	LMCO.009PA	9671
7590	10/22/2004		EXAMINER	LI, SHI K
Crawford PLLC Suite 390 1270 Northland Drive St. Paul, MN 55120			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/045,757	STEVENS, RICK C.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Shi K. Li	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 October 2001.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 October 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p) because the numbers and letters of FIGs. 1-3 are not legible and the numbers and letters of FIGs. 1-3 are not uniform, clean and well defined. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites "in an arrangement for optical communication between first and second nodes" in line 1 of the claim and "a first node comprising" in lines 1-2 of the claim. It is unclear whether the first node recited in the first place and the first node recited in the second place is the same node or different nodes. Claim 17 recites "the first node" in line 8 of the claim. It is unclear to which "first node" it refers. Claim 17 recites "a second node" in line 8 of the claim. It is unclear whether the second node recited in the first place and the second node recited in the second place is the same node or different nodes. Claim 17 recites "the second node" in lines 10-11 of the claim. It is unclear to which "second node" it refers.

Claim 18 recites "in an arrangement for optical communication between first and second nodes" in line 1 of the claim and "a first node comprising" in lines 1-2 of the claim. It is unclear whether the first node recited in the first place and the first node recited in the second place is the same node or different nodes. Claim 18 recites "the first node" in line 9 of the claim. It is unclear to which "first node" it refers.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 6-11 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (U.S. Patent Application Pub. 2003/0011844 A1) in view of Wosinska et al. (L. Wosinska et al., "Large-Capacity Strictly Nonblocking Optical Cross-Connects Based on Micro-electro-opto-mechanical Systems (MEOMS) Switch Matrices: Reliability Performance Analysis", Journal of Lightwave Technology, Vol. 19, No. 8, August 2001) and Ramadas et al. (U.S. Patent Application Pub. 2003/0039007 A1).

Regarding claims 1 and 13-14, Park et al. discloses in FIG. 1 an optical communication system comprising a plurality of terminals 16, a plurality of OADMs 18 and a plurality of optical cross-connects 14. A cross-connect facilitates communication between two nodes. For example, cross-connect next to terminal F connects communication path between terminal G and OADM 18. The difference between Park et al. and the claimed invention is that Park et al. does not teach a fault tolerant optical cross-connect. Wosinska et al. teaches in FIG. 4 an optical cross-connect

with protection. Wosinska et al. teaches in FIG. 4 to split input signal into two and feed the two signals to first switch (switch module at the top) and second switch (switch module at the bottom) and to combine the output of first switch and second switch using a coupler. One of ordinary skill in the art would have been motivated to combine the teaching of Wosinska et al. with the optical communication system of Park et al. because redundant switch protects against failure and increases system reliability. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include redundant switch module, as taught by Wosinska et al., in the optical cross connect of the optical communication system of Park et al. because redundant switch protects against failure and increases system reliability

The modified optical communication system of Park et al. and Wosinska et al. still fails to teach a self-test. However, self-test is commonly used in the art for verifying integrity of the system and isolating and bypassing failures. For example, Ramadas et al. teaches in paragraph [0051] to use self-test for diagnostics and isolating failure and switchover to a redundant module under a control processor in a redundant system. One of ordinary skill in the art would have been motivated to combine the teaching of Ramadas et al. with the modified optical communication system of Park et al. and Wosinska et al. because self-test verifies integrity of a switch module, detects failure and bypasses the failure. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use self-test to detect failure, as taught by Ramadas et al., in the modified optical communication system of Park et al. and Wosinska et al. because self-test allows a switching system to detect failure and automatically switchover from a bad module to a good module.

Regarding claims 6-7, Ramadas et al. teaches to use self-test to determine whether a module has failed.

Regarding claims 8-11 and 15-20, Wosinska et al. teaches in FIG. 4 a plurality of input fibers and output fibers. It is understood that traffic between an OXC and a node is bi-directional because communications are usually bi-directional such as phone conversation or Internet access. That is, input fiber 1 and output fiber 1 are connected to a first node, input fiber 2 and output fiber 2 are connected to a second node, etc.

6. Claims 2-3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., Wosinska et al. and Ramadas et al. as applied to claim 1 above, and further in view of English (U.S. Patent Application Pub. 2003/0039014 A1).

Regarding claims 2 and 3, Park et al., Wosinska et al. and Ramadas et al. have been discussed above in regard to claim 1. The difference between Park et al., Wosinska et al. and Ramadas et al. and the claimed invention is that Park et al., Wosinska et al. and Ramadas et al. do not teach a controller. It is well known in the art that switch module include controller to control the state of the connection points of a switch. For example, English teaches in FIG. 1 a switch fabric card 10 including a control traffic module 50. One of ordinary skill in the art would have been motivated to combine the teaching of English with the modified optical communication system of Park et al., Wosinska et al. and Ramadas et al. because a control traffic module controls the connection points of switch to direct signals from input ports to appropriate output port toward their destination. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a controller in each of the switch module, as taught by English, in the modified optical communication system of Park et al., Wosinska et al.

and Ramadas et al. because a control traffic module controls the connection points of switch to direct signals from input ports to appropriate output port toward their destination.

Regarding claims 3-5, English teaches in FIG. 1 system controller 60 for communicating between control traffic modules of switch fabric cards. English teaches in paragraph [0018] system controller 60 determines which one of the switch fabric cards is fully active. When a switch fabric card fails, system controller directs the other switch fabric card to become active.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Halgren (U.S. Patent Application Pub. 2002/0105696 A1) teaches in FIG. 5 and paragraph [0038] duplicated switch for high availability telecommunication s networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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